Zebra *A100*

DIRECT THERMAL PRINTER

User's Guide

Zebra® *A*100

User's Guide

Customer order # 55501L
Manufacturer part # 55501LB Rev. 3

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In order to insure compliance, this printer must be used with Shielded Communication Cables.

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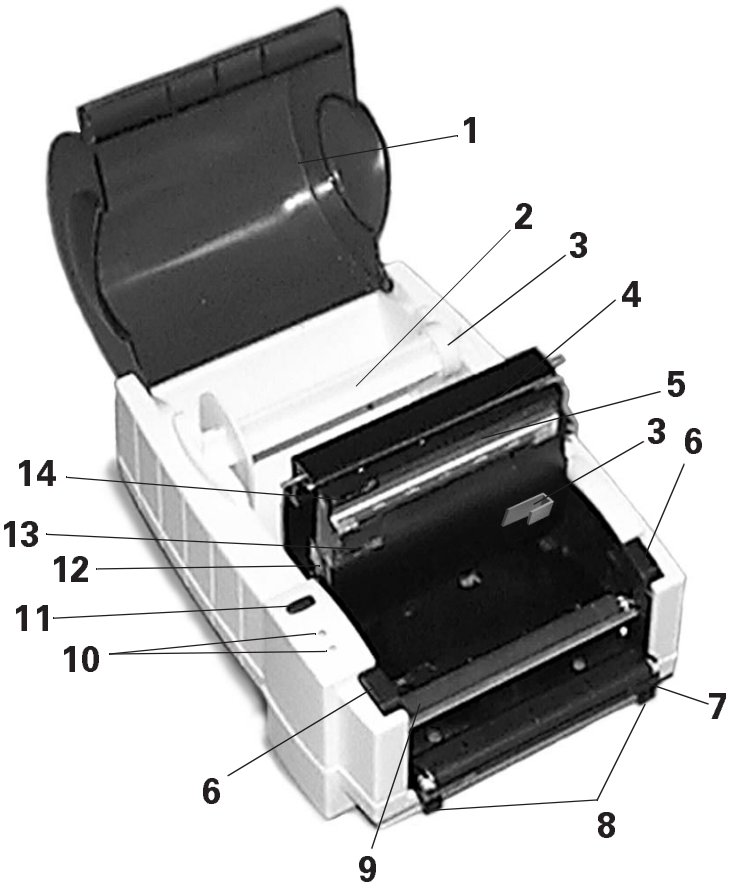

1 Media cover
2 Media holder
3 Media guides
4 Tear bar
5 Printhead
6 Print mechanism latches
7 Peel-off roller
8 Peel-off door latches
9 Platen roller
10 Power/fault lights
11 Feed button
12 Printhead open sensor
13 Paper out sensor
14 Label presentation sensor

Figure 1: Printer Overview

Introduction

This manual provides all of the information you will need to operate your printer on a daily basis. To print labels, tags, or tickets with the *A*100 printer, refer to the instructions included with the software you are using to create the label.

Unpacking and Inspection

Save the carton and all packing materials in case shipping is ever required. Inspect the printer for possible damage incurred during shipment. xIf you discover shipping damage upon inspection:

- Immediately notify the shipping company of the damage.
- Retain all packaging material for shipping company inspection.
- File a damage report with the shipping company and notify your local distributor and Zebra Technologies Corporation of the damage.

Zebra Technologies Corporation is not responsible for any damage incurred during shipment of the equipment and will not repair this damage under warranty. Immediate notification of damage to the shipping company or its insuring agency will generally result in ensuring any damage claim validity and ultimate monetary compensation.

Additional Requirements

- Shielded parallel data cable
- Power cord—for 230 VAC operation only (120 VAC units come with a power cord)

Setting Up the Zebra *A*100 Printer

Tear-Off Mode of Operation

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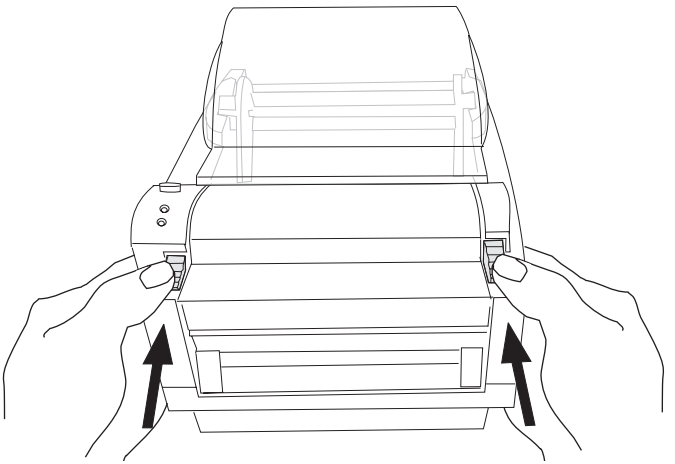

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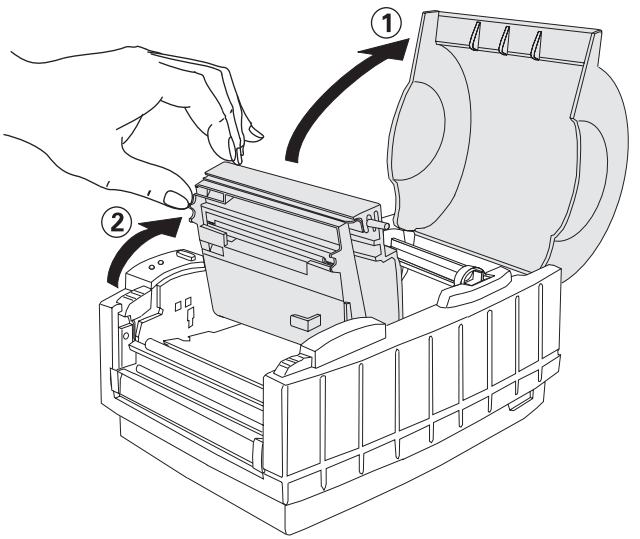

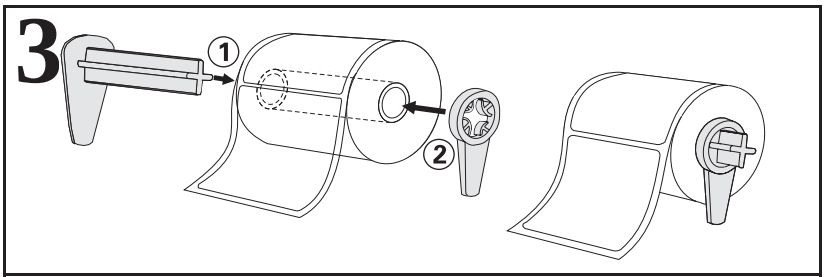
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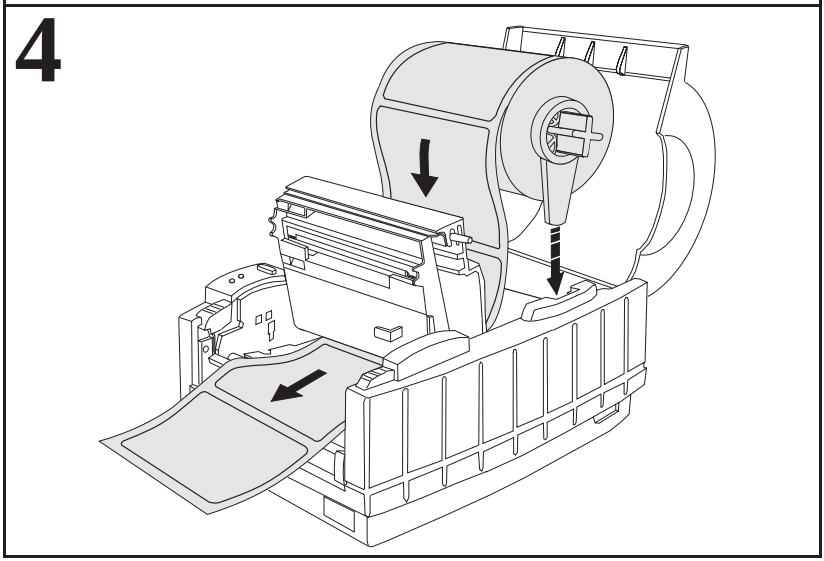
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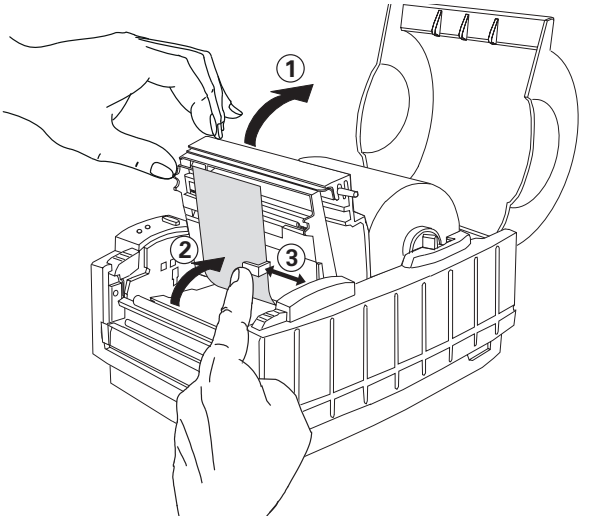

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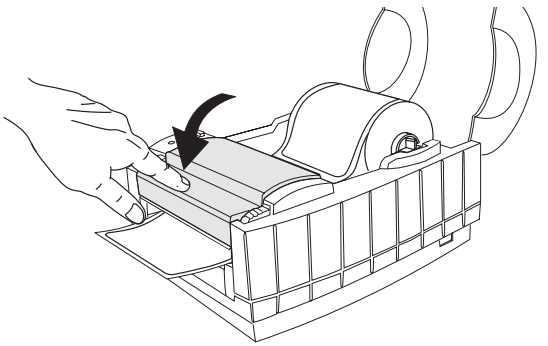

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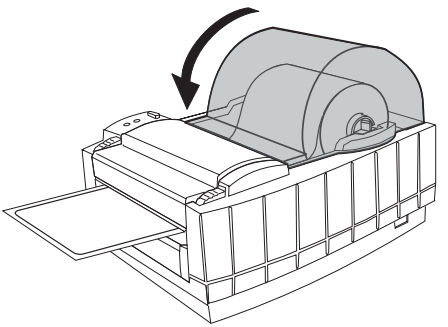

Peel-Off Mode of Operation

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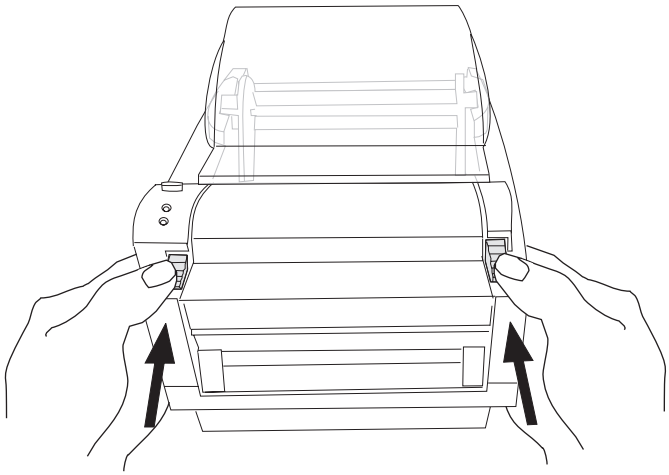

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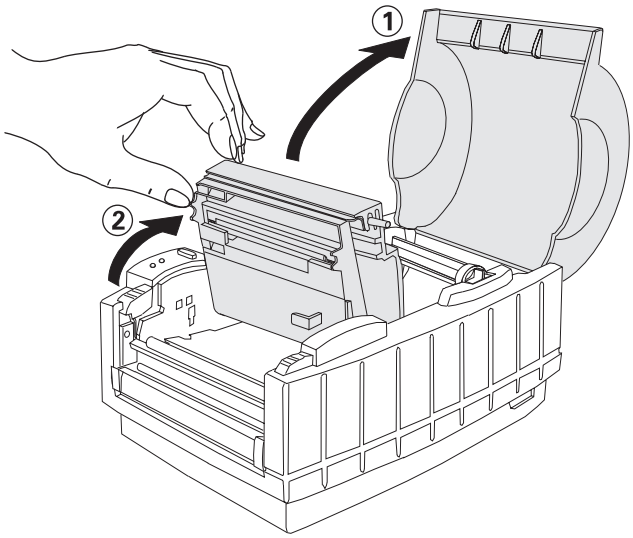

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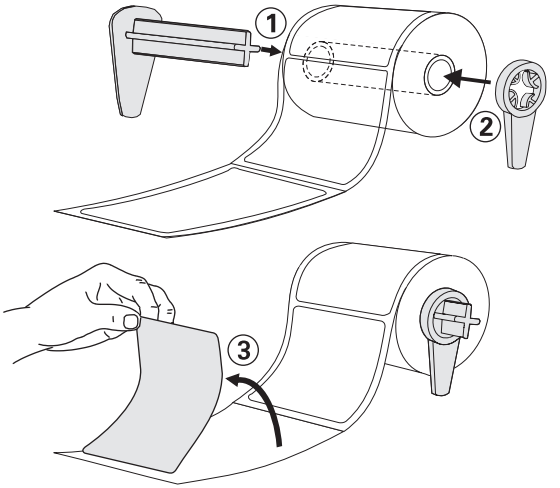

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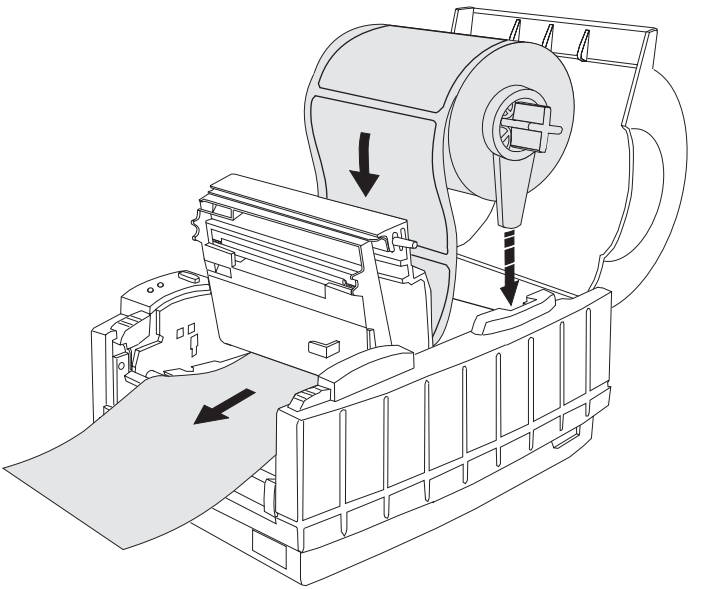

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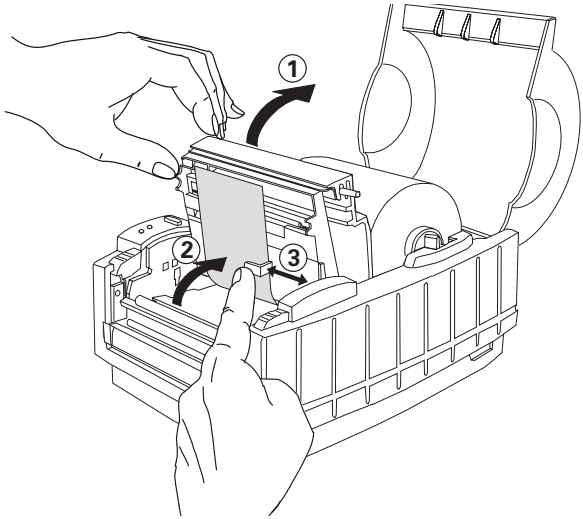
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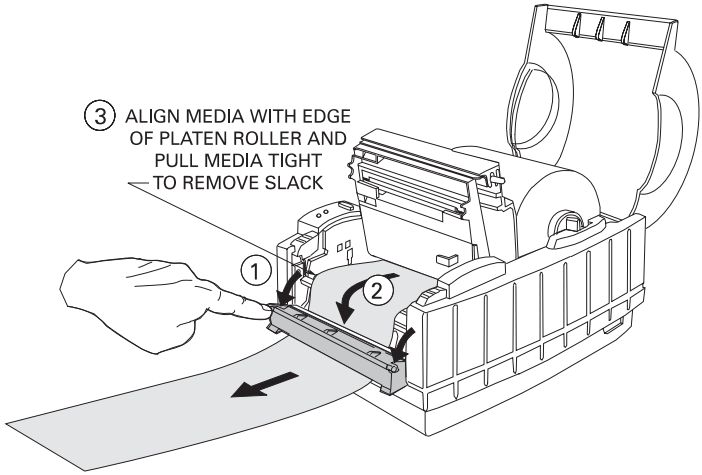
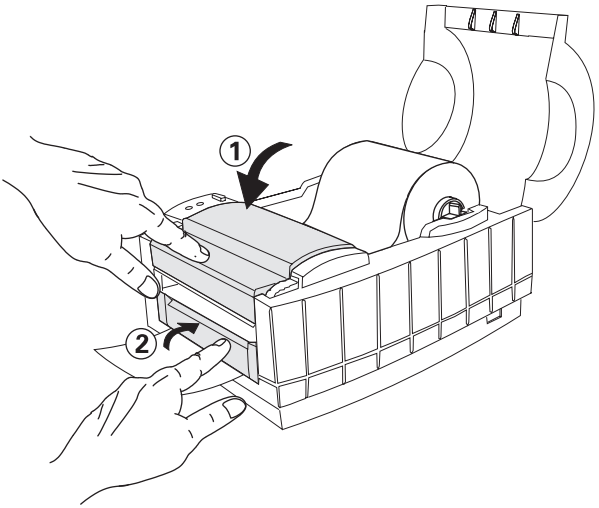

3 ALIGN MEDIA WITH EDGE OF PLATEN ROLLER AND PULL MEDIA TIGHT TO REMOVE SLACK
1
2

7



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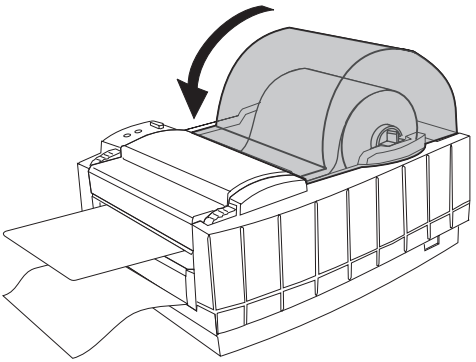
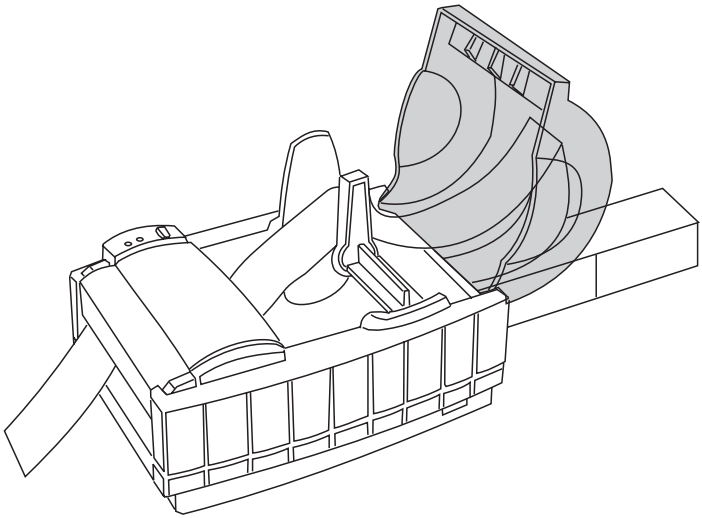


Fanfold Media Loading

1



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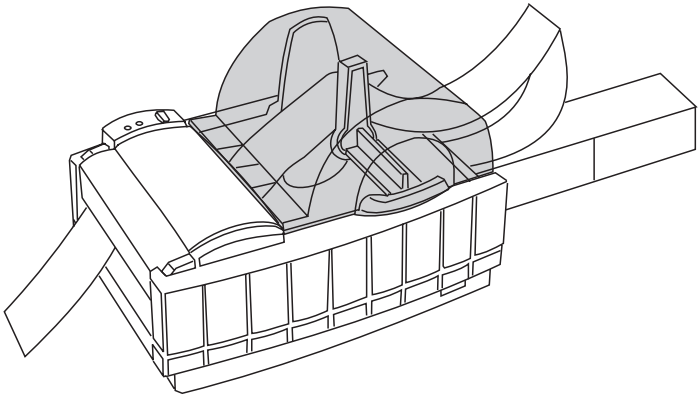

Connecting the Zebra *A*100 Printer to the Computer

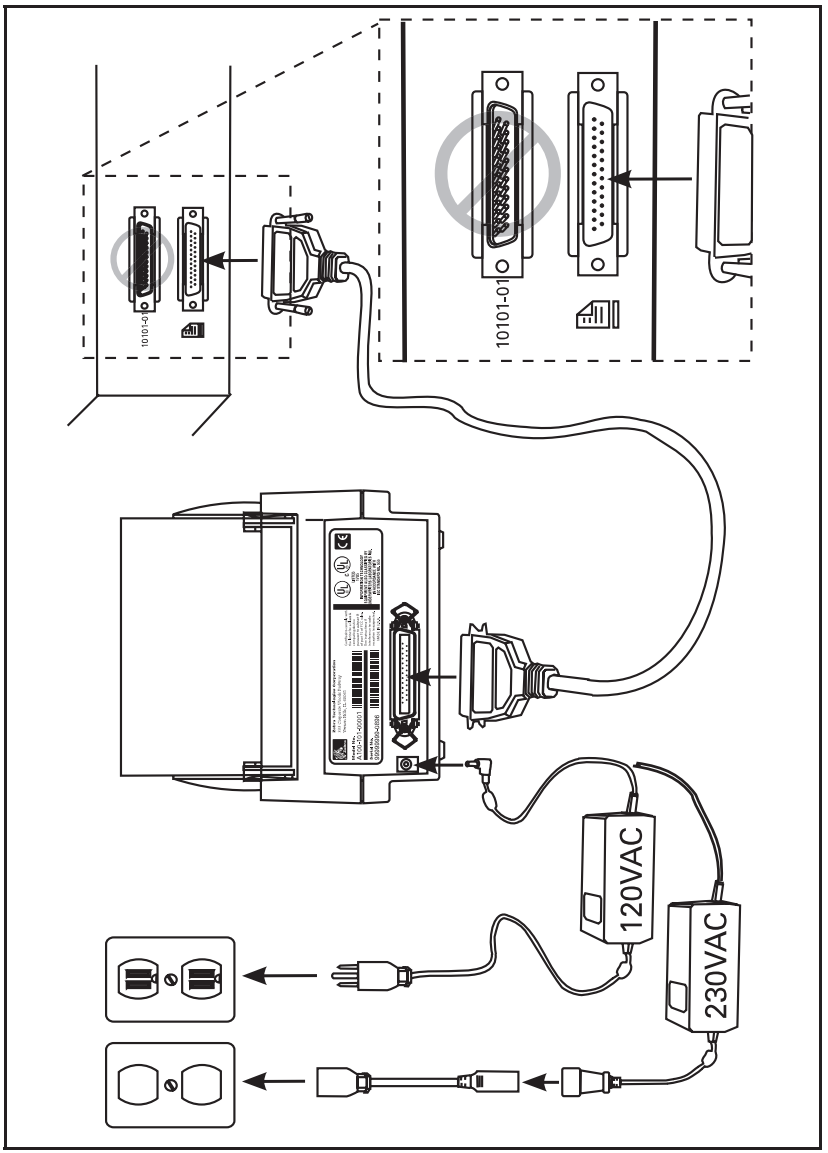

Figure 2: Parallel Connection

Setting Up the Software

You will need to install the Zebra *A*100 Printer Driver on your computer before you can operate your printer. Also included for your use with the Zebra *A*100 printer is BAR-ONE software, a powerful label design program.

System Requirements

The Zebra *A*100 software works with most IBM®-compatible personal computers available today. The software may be installed and up-and-running within a few minutes. Refer to the on-line help system and to the Read-Me file for further information and/or last-minute updates. The software may be installed on any computer that meets the following system requirements:

System Requirements	*A*100 Printer Driver		BAR-ONE	
	Minimum	Recommended	Minimum	Recommended
Processor	486SX*	486SX	486SX	486SX
Hard disk	3 MB	10 MB	3 MB	10 MB
Memory	4 MB RAM	8 MB RAM	4 MB RAM	8 MB RAM
Interface	Parallel		RS-232	Parallel
Display	VGA	SVGA	VGA	SVGA
Floppy drive	3½″		3½″	
Operating system	Windows™ 3.1 or higher or Windows 95		Windows 3.1 or higher, Windows NT, or Windows 95; OS/2	
Mouse	RS-232 or PS/2		RS-232 or PS/2	

* A 386 16MHz computer will work but print speed may be slightly reduced.

*A*100 Printer Driver Installation

The *A*100 printer uses a custom driver for the Windows operating system that allows your Windows applications to print to it.

1. Start Windows.
2. Insert the Zebra *A*100 Printer Driver diskette in your floppy disk drive (**A:** or **B:**).
3. In Program Manager, click on the **File** menu. Select **Run**. (Windows 95 users: select **Run** from the **Start** menu)
4. Type **A:\SETUP** (or **B:\SETUP**) and then press **OK**.
5. Follow the on-screen instructions to complete the installation.

Important: You must restart Windows to activate this driver!

Print Setup Dialog Box

After you have installed the Zebra *A*100 printer driver, we recommend that you use the Windows Printers Control Panel to configure it before you try to print. From the Main Program Group in Windows 3.1, select Control Panel, then Printers, then Zebra *A*100, then Setup. (Windows 95 users select Start, then Settings, then Printers, then Zebra *A*100 then File Properties, then Details, then Setup.) You will then see the Zebra *A*100's Setup Dialog:

If you will use die cut labels or notched tickets or tags, then the Non-Continuous Media Type button is already selected for you. If instead you are using continuous media having no gaps or notches to identify the start and end of each label, tag, or ticket, then click the Continuous Media Type button.

If you plan to tear off labels, tickets, tags, or strips as they are printed, then the Tear Mode is already selected for you. If instead you are using die cut pressure sensitive labels and want the printer to peel them from the backing and wait for you to take them, then click the Peel button. (See "Peel Off Mode Operation" for instructions on proper loading of peel off media.)

Enter the length of your label, tag, or ticket into the Label Length box by overtyping or using the up and down arrows. If you are using continuous media, enter the length you want your label, ticket, or tag to be.

Before printing, the Zebra *A*100 printer will normally reverse feed slightly to begin printing at the very top of the next label. If you wish to disable this feature to save time, click the No Backfeed button.

The Image Control slider sets the darkness of the printed image. The 100% setting is correct for most thermal media. We suggest you leave the slider set

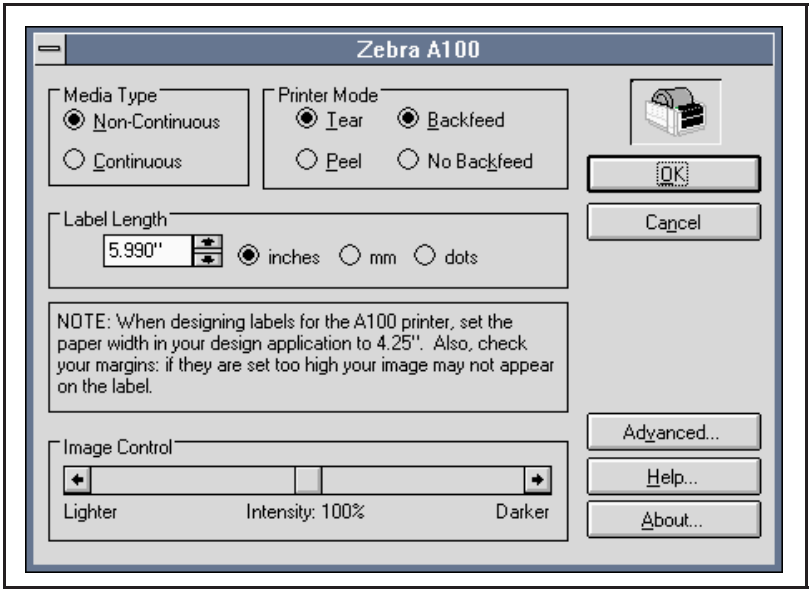

Figure 3: Print Setup Dialog Box

there until you have printed some labels and see a need to change it.

When you are satisfied with your settings, Click **OK**.

You can return to the *A*100's Setup Dialog at any time from the Printers Control Panel (or Printer Settings in Windows 95) and from the print dialog of most Windows applications.

BAR-ONE Installation

If you wish to use a customized label design package to create labels for use with your *A*100 printer, you may also install BAR-ONE software. However, this software is optional: you will not need to use BAR-ONE software if you are printing label formats created in another Windows-compatible application.

1. If you have not installed the *A*100 Printer Driver, do so now.
2. Start Windows.
3. Insert disk 1 of the BAR-ONE software in your floppy disk drive (**A:** or **B:**).
4. In Program Manager, click on the **File** menu. Select **Run**. (Windows 95

users: select **Run** from the **Start** menu.)

5. Type **A:\SETUP** (or **B:\SETUP**) and then press **OK**.
6. Follow the on-screen instructions to complete the installation.

Operating the System

To create a label for the *A*100 printer, you will need to design the label in a Windows application (such as BAR-ONE) and use that application's print setup to select the Zebra *A*100 printer before you print. Alternatively, you may use the Windows Printers Control Panel to select the Zebra *A*100 as your default printer for all your Windows applications. The Zebra *A*100 printer driver works like any other printer driver: by selecting the Zebra *A*100 printer in Print Setup or in the Windows Printers Control Panel you can print from most Windows applications to this printer.

Printer Operating Modes

Tear-Off Mode. The operator tears off each label (or a strip of labels) as it is printed.

Peel-Off Mode. The backing material is peeled away from the label as it is printed, the printer waits until the operator removes the label, then the next label is printed.

Operator Controls

Power Switch. Located on the right-hand side of the printer near the back. The power switch should be turned off before connecting or disconnecting any cables.

Feed Key. In normal use, pressing the Feed Key once when the printer is idle (not printing) will cause the printer to feed a blank label. Holding the Feed Key while turning the power on and for 2 seconds afterward causes a test pattern to print. See Figure 4. This test pattern allows your to quickly confirm that the printer is working without connecting it to a computer.

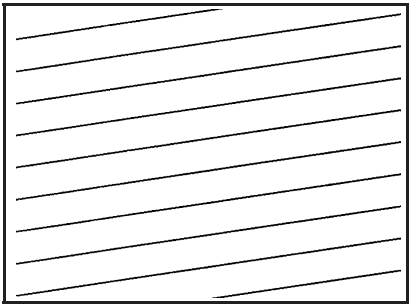

Figure 4: *A*100 Test Label

Printer Indicator Lights.

Printer Condition	Power Light		Fault Light		
	On	Off	On	Flashing	Off
Power is off or printer not receiving power		•			•
Power is on	•				•
Communication error or printhead is over temperature	•			•	
Paper out or not sensed or printhead is open	•		•		

Initial Printer Power-Up

Turn the printer on by pressing the Power Switch on the right side of the printer. The Power and Fault lights will turn on. The printer performs a set of internal diagnostics, and after the diagnostics have been completed (within 1 - 10 seconds) the Fault light will turn off.

If loading the printer with die-cut labels for the first time, press the Feed key once to position the media.

Adjusting the Darkness of the Printing

Use the Windows Printers Setup dialog from your Windows application or from the Windows Printers Control Panel to adjust the slide bar labeled "Relative Darkness". See "Print Setup Dialog Box" on page 12. Print sample labels and adjust the darkness further if necessary.

Preventive Maintenance

Cleaning

CAUTION: Use only the cleaning agents indicated in Table 1. Zebra Technologies Corporation will not be responsible for any other fluids being used on this printer.

Inconsistent print quality, such as voids in bar codes or graphics, may indicate a dirty printhead. For best results, perform the cleaning procedures in Table 1. For the location of these printer parts, refer to Figure 1 on page ii.

Table 1. Cleaning Schedule

Area	Method	Interval
Printhead	**Note:** You do not need to turn the printer off before cleaning the printhead. Use solvent* on a cotton swab to clean the print elements from end to end. (The print elements are the thin gray line on the printhead.)	After every roll of media (or 500 ft of fanfold media)
Platen Roller	Rotate the platen roller and clean it thoroughly with solvent* and a cotton swab.	
Peel-Off Roller	Rotate the peel-off roller and clean it thoroughly with solvent* and a cotton swab.	
Transmissive Media Sensor	Air blow	
Media Path	Solvent*	
Peel/Tear Bar	Solvent*	As needed.
Label Available Sensor	Air blow	Monthly.
Printhead Open Sensor	Air blow	As needed.
Exterior	Mild detergent or desktop cleaner.	As needed.
Interior	Brush/vacuum cleaner	As needed.
* Zebra recommends using solvent containing 70% isopropyl alcohol.		

Lubrication

CAUTION! No lubricating agents of any kind should be used on this printer! If used, some commercially available lubricants will damage the finish and the mechanical parts.

Troubleshooting

Table 2. Troubleshooting

Symptom	Diagnosis	Action
Power light does not turn on when Power switch is turned on.	Printer is not receiving power.	Make sure that the power supply is plugged into the printer and into a wall outlet, power strip, or other source of power.
When printer is first powered on, the Fault light remains on.	Printer failed an internal diagnostic test.	Turn printer off and then back on. If the symptom persists, call a service technician.
Fault light is on.	Printhead is open.	Close printhead.
	Out of media or media incorrectly loaded.	Load media correctly. Make sure that the media is placed on the inside edge of the platen roller and that it feeds straight through the printhead otherwise it may not be detected by the media sensor.
Fault light is flashing.	Printhead is overheated.	Allow printer to cool. Printing resumes automatically when the printhead element cools to operating temperature.
	Communication error: printer and host computer are not communicating correctly.	Make sure the printer cable is installed correctly.
Long tracks of missing print (blank vertical lines) on several labels.	Printhead is dirty.	Clean the printhead. See Table 1 on page 16.
	Print element is damaged.	Call a service technician to replace the printhead.
Printer appears to operate, but nothing prints.	Non-thermally sensitive material.	Make sure that you are using direct thermal label, ticket, or tag stock. Zebra recommends using genuine Zebra media in your printer for best results.

Specifications

Print density		203 dots/inch	8 dots/mm
Print width		1″ to 4.125″	25.6 to 105.0 mm
Print speed		2″/sec	51 mm/sec
Label width (including backing material, if any)		1″ to 4.25″	25 to 108 mm
Label length		0.5″ to 8″	12.7 to 203 mm
Interlabel gap		0.08″ to 0.16″	2 to 4 mm
Label thickness (including backing material, if any)		0.003″ to 0.010″	0.076 to 0.254 mm
Label roll size	Maximum outer diameter	5.0″	127 mm
	Minimum inner core diameter	1.0″	25.4 mm
Registration tolerance	Horizontal	± 0.059″	± 1.5 mm
	Vertical	± 0.0393″	± 1.0 mm
First dot location (from outer media edge)		0.125″ to 0.140″	3.17 to 3.56 mm
Fonts available		All Windows fonts resident in the host computer or Windows application.	
Bar codes available		All bar codes available in the Windows application.	
Media requirements		Zebra recommends use of Zebra brand media. All media must be direct thermal media. Media may be continuous, die-cut, or notched. Notched media must have a notch which is 1/4″ wide × 3/32″ long located on the left side of the label as it feeds through the printer.	
Physical size (L × W × H)		9.7″ × 7.0″ × 6.0″	249 mm × 179 mm × 154 mm
Weight (without media)		3.35 lb	1.52 kg
Temperature range	Operating	50° to 104° F	10° to 40° C
	Storage	-4° to 140° F	-20° to 60° C
Relative humidity, operation and storage		10 to 90% R.H.	
Electrical		External 120 or 230 VAC power supply, depending on which model you order. Additional custom line cords may also be available.	
Communications		36-pin Centronics™-compatible parallel port	

Agency approvals	• UL 544 Medical Equipment Standard Part 42.5 • CSA 22.2 No. 950 Canadian Safety Standard • IEC 950/EN 60950 International Safety Standard • FCC Part 15 Subpart B level A Electromagnetic Radiation Standard • AAME 4.3.2 Medical Standard • UL 1950 Domestic Safety Standard • SOR/88-475 Canadian Electromagnetic Radiation Standard • EN50082-1 International Immunity Standard • C.I.S.P.R.-22 Class B European Electromagnetic Radiation Standard
Processor	8-bit microcontroller
Power line cord	• The overall length must be less than 12.5 ft (3.8 meters) • It must be rated for at least 3 A, 250 V. • The chassis ground (earth) MUST be connected to assure safety and reduce electromagnetic interference. The ground connection is handled by the third wire (earth) in the power line cord. See Figure 5. The AC power plug and IEC 320 connector must bear the certification mark of at least one international safety organization. See Figure 6.
Parallel data cable	For maximum reliability, use a parallel data cable no longer than 6 ft (1.8 m).

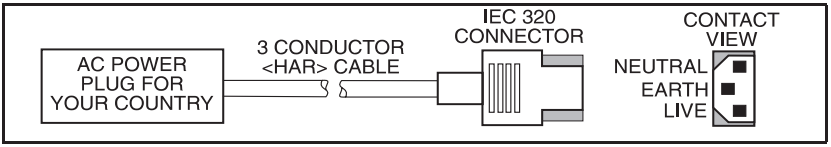

Figure 5. 230 VAC Power Line Cord

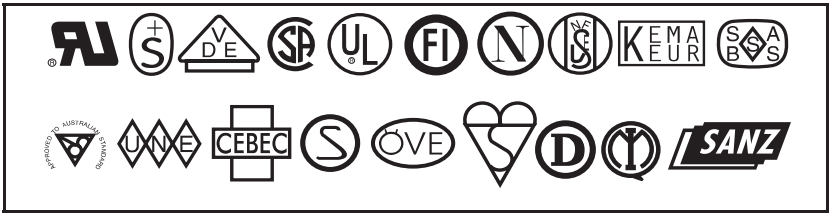

Figure 6. Examples of International Safety Organizations

Table 3. Parallel Pinouts

Pin No.	Description
1	Strobe
2-9	Data Bits 0-7
10	Acknowledge
11	Busy
12	Paper end
13	Select
14-17	Not used
18	+5 V @ 0.75 A
19-30	Ground
31	Not used
32	Error/fault
33	Ground
34	Not used
35	+5 V through 3.3 K
36	Select

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Warranty

1. Printer Warranty

ZEBRA printers, excluding thermal printheads which are warranted separately below, are warranted against defects in material or workmanship for twelve (12) months from the date of purchase by the end user. This warranty does not cover normal wear and tear and shall be null and void if the equipment is modified, improperly installed or used, damaged by accident or neglect, or in the event any parts are improperly installed or replaced by the user. Proof of purchase or product registration is required. If proof of purchase or product registration cannot be established, shipment date to the original buyer (dealer or distributor) will be used to establish the warranty period.

Since printhead wear is part of normal operations, the original printhead and replacement printheads are covered by a limited warranty of six (6) months from the date of purchase by the end user. To qualify for this warranty, the printer must be returned to the factory or other authorized service center. Although the user is not required to purchase ZEBRA brand supplies (media), to the extent it is determined that the use of other supplies (media) shall have caused any defect to the thermal printhead for which a warranty claim is made, the user shall be responsible for ZEBRA Technologies' customary charges for labor and materials to repair such defect. To the extent that it is determined that failure to follow the preventive maintenance schedule and procedures listed in the User's Guide shall have caused any defect to the thermal printhead for which a warranty claim is made, this limited warranty shall be void.

ZEBRA TECHNOLOGIES' SOLE OBLIGATION UNDER THIS WARRANTY SHALL BE TO FURNISH PARTS AND LABOR FOR THE REPAIR OR REPLACEMENT OF PRODUCTS FOUND TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP DURING THE WARRANTY PERIOD.

As a condition of this warranty, the user must: (a) obtain a ZEBRA Return Authorization for the printer, or subassembly(s); (b) ship the printer or subassembly(s), transportation prepaid to the authorized service location; and (c) include with the Product or subassembly(s) a written description of the claimed defect. Unless ZEBRA Technologies authorizes return of the entire Product, the user shall return only the subassembly(s). Products returned shall be packaged in the original packing and shipping container or comparable container. In the event equipment is not so packaged or if shipping damage is evident, it will not be accepted for service under warranty. Surface transportation charges for the return of the printer to the customer shall be paid by ZEBRA Technologies within the 48 contiguous states and the District of Columbia. Customer shall pay shipping costs, customs clearance, and other related charges outside the designated area. If ZEBRA Technologies determines that the Product returned to it for warranty service or replacement is not defective as herein defined, BUYER shall pay all costs of handling and transportation.

2. Supplies Warranty

ZEBRA supplies are warranted to be free from defects in materials or workmanship for a period of either the stated material shelf life or 6 months from date of shipment, whichever occurs first, provided that the BUYER has complied with ZEBRA Technologies' guidelines on storage, handling, and usage of the labeling supplies in ZEBRA printers. ZEBRA Technologies does not warrant the performance of ZEBRA labeling supplies on non-ZEBRA printers.

Any supplies product shown to the satisfaction of ZEBRA Technologies, within the time provided, to be so defective shall be replaced without charge, or ZEBRA Technologies may issue a credit in such an amount as it deems reasonable.

3. Warranty Exclusions and Conditions

The above warranties are in lieu of all other warranties, expressed or implied, oral or written, statutory or otherwise, including any implied warranty of merchant-ability or fitness for a particular purpose.

ZEBRA Technologies shall not be responsible for the specific application to which any Products are applied, including but not limited to compatibility with other equipment.

All statements, technical information and recommendations relating to ZEBRA Products are based upon tests believed to be reliable but do not constitute a guarantee or warranty.

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No salesperson, representative or agent of ZEBRA Technologies is authorized to make any guarantee, warranty, or representation in addition to the foregoing warranty.

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